

**GEOLOGY AND MINING HISTORY**  
**FIELD TRIPS**  
Sponsored by  
**BUREAU OF LAND MANAGEMENT**  
and  
**BUENA VISTA MUSEUM OF NATURAL HISTORY**  
**CUSTOM TOURS**

The Bureau of Land Management and Buena Vista Museum of Natural History have initiated a program of earth science field trips to points of mineralogic, geologic, paleontologic and historic interest throughout central California. These trips are designed for persons of high school age and older. It is not necessary to have a technical background to attend or benefit from the trips. These field trips are recommended for teachers and many of them can be taken for in-service continuing education credit through California State University Bakersfield. Each trip includes a full spectrum of environmental and land management topics. A field guide is prepared for some of the field trips which include maps and directions which can be used by anyone for self-guided investigation of the geology along the field trip route.

California is ever-changing. The Geology Field Trip Program explores the changes that have occurred throughout California's complex and fascinating geologic history and focuses on the human interaction with this geology over the past 150 years. Since the discovery of gold at Sutter's Mill in 1848, the landscape of California has never been the same. We live in an environment today with a range of social issues that are directly linked to our geologic past. Symposia and field trips of this interpretive outdoor program are designed to bring this message to residents of all parts of California.

Visit our web site at <http://www.ca.blm.gov/bakersfield/geologytrips.html>. The Buena Vista Museum of Natural History web site is at [www.sharktoothhill.com](http://www.sharktoothhill.com). For additional information, comments or suggestions, contact Dr. Gregg Wilkerson at 661-391-6177 or at [gregg\\_wilkerson@blm.gov](mailto:gregg_wilkerson@blm.gov).

CUSTOM TOURS ARE AVAILABLE TO ALL AREAS OF CALIFORNIA FOR GROUPS OF 25 OR MORE. CALL 805-391-6177 TO SCHEDULE A GROUP TOUR FOR ANY OF THE TRIPS LISTED BELOW:

**Bakersfield to Mojave and Red Rock Canyon**

Mercury mines near Keeler and the Cactus, Golden Queen and Solidad Mountain gold mines near Mojave are visited. Then we go to Red Rock Canyon by way of the old salt mines at Saltdale. On the way we examine the Garlock Fault. The day ends with a tour down the Kern Canyon on our way back to Bakersfield. Management practices for the Mojave ground squirrel, Desert tortoise and Tehachapi salamander are discussed.

**Breckenridge and Piute Mountains**

This tour takes back roads up Breckenridge mountain exploring mines and hot springs of Havilah, the original county seat. The Bright Star mine, Claraville, and Weldon districts are investigated. Examples of interaction between ecosystems and geology are discussed.

**Cerro Gordo**

The ecology, geology, mining activity and mining history of the Southern Inyo Mountains is investigated. Stops are made at Little Lake, Lone Pine, Olancho, and Keeler. The mining camp of Darwin is also visited on the way to Darwin Canyon and the Crystal Springs mining district. The man-made ecosystem changes at Owens Lake are discussed.

**Death Valley**

This 3-day field trip explores the geology of the Amargosa Basin, Death Valley and the Panamint and Argus Mountain Ranges. Stops include the Bullfrog bold mine in Rhyolite, the Ryan Borate deposits near Amargosa Valley, and several stops within Death Valley National Park, including Mohogany Flat, Aguerberry Point, Dante's View, Harmony Borax Works and Greenwater

**East Cuyama Valley and Carpenteria**

The paleontology and geology of the San Joaquin Valley, Eastern Cuyama Valley and Coast Ranges is discussed. We visit scenic Santa Barbara Canyon and the San Andreas Fault. The trip includes a visit to the Carpenteria oil seeps which is a historic and archaeological site. This trip will end in Carpenteria. There will be optional camping Saturday night at Carpenteria State Beach for those going in private vehicles.

**Hydrothermal Vent Community, San Rafael Mountains**

The Franciscan hydrothermal vent site at the Figueroa deposit in the San Rafael Mountains is a relic fossil community that was subject to the same environmental conditions as occurs at modern mid-ocean vents.

### **Johnsondale- California Hot Springs**

This program examines the history of the western face of the Sierra Nevada and the roof pendants in the Johnsondale Area and the North Branch of the Kern River and the Kern River Fault. We return to Bakersfield by way of California Hot Springs.

### **Kern Canyon-Lake Isabella-Walker Pass**

The geology and ecology of the Kern Canyon, Kern River and Lake Isabella is investigated. Stops are made at the Keysville, Kernville and Weldon Mining Districts. Processes for recovery of tungsten and gold are discussed. Archaeology sites in the Walker Pass area (Solstice Rock and Birthing Stone) are also visited. We start at sunrise at the Solstice Rock

### **Kennedy Meadows-Black Rock-Sherman Pass**

The high Sierra is the focus of this field trip. From Lake Isabella we investigate archaeology sites at South Lake, the Solstice Rock and Birthing stone on our way to a zoned pegmatite in the Chimney Peak Recreation Area. We then take County Road J41 to Kennedy Meadows and Blackrock Ranger Station examining plutons and enclaves and other igneous geology topics. We return to Bakersfield through the Sherman Pass

### **Lake Isabella**

The geology around Lake Isabella will be explored as part of the History Days Program. This program is being coordinated through the Kernville Historical Society.

### **Mineral King and Case Mountain Sequoia Grove**

The seldom-visited giant sequoia groves on BLM land at Case Mountain are inspected by a 1 mile hike cross-country (no trails). This unique experience is followed by a tour of historic Mineral King in Sequoia-Kings Canyon National Park. The silver-lead-zinc (gold) mineralization there is associated with an ancient sub-sea volcano. High clearance vehicles are required for this trip.

### **Mother Lode Part I: Southern Mines**

This 3-day field conference examines the mines, geology and mining history between Maricopa and Jackson. There will be a Friday Evening Lecture Series in Jamestown at the Community Hall 6:00-9:00 p.m. Saturday's trip will be from Jamestown through Columbia and then to the Hidden Treasure Mine and hence to the Westpoint Mining District via the Chaw Se Historic Park (petroglyphs, grinding stones). This tour ends at the Kennedy Wheels in Jackson. Sunday's Field trip starts in Coulterville and examines the mining areas of La Grange, Hornitos, Bear Valley and Mt. Bullion. The Sunday field trip ends with a stamp-mill demonstration in Mariposa and a visit to the State Mining and Mineral Museum. This trip is co-sponsored by the Far West Geoscience Foundation. co-sponsored by the Far West Geoscience Foundation.

### **Mother Lode Part II: Northern Mines**

This 3-day field conference looks at the structure, stratigraphy and ecology of the Northern Mines of the Mother Lode in Sierra and Plumas Counties. Friday's trip will be from Camptonville to Taylorsville by way of La Porte. Saturday's trip will be from Taylorsville to Downieville by way of the Walker Mine. Sunday's trip will be from Downieville to Grass Valley. There will be a Friday Evening Lecture at the Taylorsville Town Hall, 6:00 to 9:00 p.m.

### **Mother Lode:Part III**

#### **Central and East Belt Gold Mines :Jackson-Coloma-Auburn**

This 3-day field conference and symposia examines the mines east of Placerville and between Placerville and Auburn. Mining history and ecology at Coloma, Garden Valley, Georgetown, Volcanoville, Kelsey, and Cool are investigated

### **Newhall-Quartz Hill-Rosemond**

This investigates the titanium deposit at Soledad Canyon, the graphite vein deposits and Howlite borate deposits at Tick Canyon, and the Tropico Gold mine near Rosemond. We also investigate a large anorthosite body in the northern San Gabriel Mountains. A final stop is made at Placerita, the site of the first gold discovery in Spanish California (no, it was NOT as Sutter's Mill!).

### **Oil and gas seeps of western Kern County**

The oil/gas seeps at Devil's Den, Avinal, McKittrick and Maricopa are investigated.

### **Owens Valley-Mono Basin**

Water management, historic mining, glacial and volcanic geology are the main topics of this field trip Stops or topics of discussion include Cinder Hill, Owens Lake, Alabama Hills, Mazourka Canyon, American Perlite Mine, Tinnemaha Reservoir, June Lake, Devil's Post Pile, Inyo Craters, Mono Lake, Bode State Park and Travertine Hot Springs.

**Pack Saddle Cave**

This is an all-day hiking trip to Pack Saddle Cave north of Kernville. It is a 3 hour hike into the cave on a fairly steep trail and a 2 hour return hike. Bring your flashlights! The geology and mining history of the Kern Canyon-Lake Isabella area is covered including a discussion of hydraulic gold mining on the Kern River from 1851-1871.

**Panoche and Tumey Hills**

This is a 2-day field conference. Leaving early Saturday morning, we set up a base camp at the edge of the Tumey-Panoche Hills Wilderness Study Area. Saturday afternoon will be spent in reconnaissance for plesiosaur and mosasaur sites within a radius of 3 miles of base camp. Reconnaissance work will continue on Sunday afternoon.

**San Andreas Fault: Coalinga to Pinnacles**

The Tumey-Panoche hills plesiosaur/mosasaur site, New Idria Mercury mining district, San Andreas Fault, and Pinnacles National Monument are the main stops on this trip. The history of earthquake activity including the Coalinga and 1992 Parkfield earthquakes are discussed as well plate tectonics and the origin of mercury in the California Coast ranges.

**San Andreas Fault: Gorman to Wallace Creek (Carrizo Plains)**

This trip examines the "Big Bend" segment of the San Andreas Fault. Exposures of the 1857 Ft. Tejon fault scarp are inspected along with several pressure ridges and sag ponds. The timing of earthquake activity along this stretch of the San Andreas is discussed in relation to the offset drainage at Wallace Creek. The paleotectonic, sedimentation and drainage patterns of the Carrizo Plains-Temblor Mountains is reviewed.

**San Andreas Fault: Soda Lake (Carrizo Plains) to Parkfield**

Parkfield, the "earthquake capital of the world" is the final stop in this trip along the San Andreas. We learn about the complex and fascinating ecology at Soda Lake and Carrizo Plains Natural Area. We see examples of off-set fences and bridges in the fault zone. We investigate oil seeps at McKittrick. The stratigraphy and ecology of the La Panza and Gablin ranges are studied including Syncline Hill in the Carrizo Plains.

**San Andreas Fault: Ft. Tejon to Pallet Creek**

This segment of the San Andreas fault takes us to several sag ponds and offset streams. Stops are made at Ft. Tejon, Quail Lake, Devil's Punchbowl and Wrightwood. Carbon 14 radiometric dating and it's application to understanding the frequency of earthquakes along the San Andreas Fault is considered at the Pallet Creek paleoseismic site. Examples of the interaction between ecosystems and fault systems are discussed

**San Andreas Fault: Pallet Creek to Parkfield (3 days)****Pallet Creek to Gorman**

This segment of the San Andreas fault takes us to several sag ponds and offset streams. Stops are made at the Pallet Creek paleoseismic site, Devil's Punch Bowl, Avenue S and Highway 14, Lake Elizabeth, Lake Hughes and Quail Lake. The tour includes a stop at National Cement's limestone mine.

**Gorman to Wallace Creek (Carrizo Plains)**

This day examines the "Big Bend" segment of the San Andreas Fault. Exposures of the 1857 Ft. Tejon fault scarp are inspected along with several pressure ridges and sag ponds. The timing of earthquake activity along this stretch of the San Andreas is discussed in relation to the offset drainage at Wallace Creek. The paleotectonic, sedimentation and drainage patterns of the Carrizo Plains-Temblor Mountains is reviewed.

**Wallace Creek to Parkfield**

Parkfield, the "earthquake capital of the world" is the final stop in this trip along the San Andreas. We learn about the complex and fascinating ecology at Soda Lake and Carrizo Plains Natural Area. We see examples of off-set fences and bridges in the fault zone. The stratigraphy and ecology of the La Panza and Gablin ranges are studied including Syncline Hill in the Carrizo Plains.

**San Francisquito Dam and Old Ridge Route**

This trip explores the San Francisquito Canyon and the infamous Dam disaster that occurred there in 1920. We also investigate the San Andreas Fault between Lake Elisabeth and Quail Lake. The tour includes a mine tour at the National Cement Limestone Mine. The final part of the tour returns to Castaic Junction over the Old Ridge Route. This historic roadway has many outstanding exposures of sediments of the Ridge Basin and an interesting and unique geologic history.

**San Joaquin Valley: Eastside**

This trip examines the Bena fossil beds, endangered plants (Bakersfield Cactus) and includes a display of core at Bakersfield College. Topics include the Kern River, Round Mountain Fault, Kern Front Fault, 1952 Tehachapi-Arvin-Bakersfield Earthquakes, Hazardous Material Disposal and the Olcese Turretella Beds.

**San Joaquin Valley: Westside**

The ecology and geology of Wheeler Ridge, White Wolf Fault, Maricopa and McKittrick Brea Pits, Oil Mining (diatomite), Lake View Gusher, Elk Hills Naval Petroleum Reserve and South Belridge oil field are discussed. Includes a display of core at the California Well Sample Repository, California State University, Bakersfield.

**Santa Maria Basin-Point Sal**

The ecology, history and geology of the Santa Maria area is considered with stops at Point Sal and Vandenberg Air Force Base. Plate tectonics, continental accretion and shoreline processes are topics of discussion. Additional stops will be made at the Celite diatomaceous earth mine and La Purisima Mission. The program ends at Point Sal State Beach. Optional camping at Point Sal on Saturday night is possible for those not going on this field trip in private vehicles. This will require hiking to and from the Point on a steep trail.

**Santa Maria-Carrizo Plain-Cuyama Valley**

This trip starts in Santa Maria and investigates the ecology of the Santa Margarita Lake region including the Rinconada and La Panza mining districts. The tour continues on Highway 58 to the Carrizo Plains for a look at the San Andreas Fault. The tour ends with a private showing of the Luis Bonilla Ranchero and Una Halford Chumash artifact collection in New Cuyama.

**Solstice Rock**

The paleoastronomic sight near Walker Pass will be explored on the morning of the winter solstice. Along with viewing the solstice, we will see the Birthing Stone site nearby. This site is where Tubatila Indians marked the winter and summer solstices.

**Valley Springs-Copperopolis, "Western Copper Belt"**

We learn about acid mine drainage at the infamous Penn mine, limestone mining at San Andreas and open pit gold mines at Jamestown and Carson Hill. This is followed by an excursion to Copperopolis and the Royal Mountain King Mine and then to the California asbestos disposal quarry

**Ventura-Ojai-Santa Paula-Lake Piru**

This trip includes stops at the Olivas Odobe, Ventura Historical Society Museum, Ventura Avenue Oil Field, Ojai Valley, Union Oil Museum (Santa Paula), Bardsdale and Blue Point on Lake Piru. We learn about the history of oil development in Ventura County, the oil mines of Sulfur Mountain, the effects of the St Francis Dam disaster and the ecology of Lake Piru.

**Walker Basin-Loraine Mining Districts**

The mining history of the Piute Mountain and Loraine Mining Districts is covered. Stops include the Tungsten King, Joe Walker, Golden Cowboy and Zenda Mines. We also visit an archaeology and hot-springs site at Twin Oaks.

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